

REMARKS

Examiner William Boddie is thanked for the thorough examination and search of the subject Patent Application.

Claims 1, 6-7, 16, 23, 30, 35-36, 47, 54, 85, 92, 99 and 106-107 have been amended.

All Claims are believed to be in condition for Allowance, and that is so requested.

The objected claims 1, 6-7, 16, 30, 35-36, 47, 85, 99 and 106-107 have been corrected as advised by the examiner.

Reconsideration of the rejection of claims 1-3, 8, 11-15, 17-23, 26-32, 37, 40-45, 49-54, 57-60, 70, 75, 78-84, 86-92, and 95-98 under 35 U.S.C. 102(e) as being anticipated by Dowling et al. (US 2002/0070688) is requested, based on amended claims and on following remarks:

The amended claim 1 of the claimed invention discloses:

1. A system to perform a light show, wherein LED modules are displaying related light beams having defined properties, wherein said properties have been defined prior to performing said light show, is comprising:
 - an integrated circuit comprising:
 - an interface to input information;

a memory to store the information about the properties of said beams to be displayed;
a sequencer to control one or more LED drivers;
a LED driver unit comprising a driver for each color of said LED modules able to control the intensity of light where one driver for each LED is used; and
an electrical connection to said LED modules; and
an arrangement of one or more LED modules.

The claimed invention discloses (paragraph 0027, lines 5-10):

"Said "light show" ASIC **22** comprises a downloadable, free programmable sequencer **23**, an LED driver unit **24**, being connected to six modules of LEDs **25** via nine pins **26** and a multiplexer arrangement. In a preferred embodiment of the invention said free programmable sequencer **23** is implemented on an ASIC."

Dowling et al. do not disclose using "an integrated circuit comprising an interface to input information, a memory to store the information about the properties of said beams to be displayed, a sequencer to control one or more LED drivers, an LED driver unit comprising a driver for each color of said LED modules able to control the intensity of light where one driver for each LED is used, and output pins for an electrical connection to said LED modules wherein said output pins are controlled and arranged by multiplexing means, and an arrangement of one or more LED modules," as Claim 1 of the claimed invention does.

Dowling et al disclose in paragraph 53:

"[0053] As used herein, the term processor may refer to any system for processing electronic signals. A processor may include a microprocessor, microcontroller, programmable digital signal processor or other programmable device, along with **external memory** such as read-only memory, programmable read-only memory, electronically erasable programmable read-only memory, random access memory,

dynamic random access memory, double data rate random access memory, Rambus direct random access memory, flash memory, or any other volatile or non-volatile memory for storing program instructions, program data, and program output or other intermediate or final results.”

It has to be noted that Dowling et al disclose an **external** memory while the claimed invention discloses an integrated circuit comprising also a memory among all the other components.

Claims 2, 3, 8, 11-15, 17-20, 22-23, and 26-29 are dependent claims upon base claim 1 which is believed to be patentable according to the arguments outlined above.

Claim 21 has been canceled. The limitation of claim 21, “said circuit is realized in an IC”, has been written in amended claim 1 now.

Claim 23 has been amended for clarification. The term “LEDs” has been replaced by “LED modules”.

The amended claim 30 discloses:

- 30.** A system for visual, electronic communication, highlighting information/events, wherein LED modules are displaying related light signals having defined properties representing said different information/events, is comprising:
- an integrated circuit comprising:
 - an interface to input information;
 - a memory to store the information about the properties of said signals to be displayed;
 - a sequencer to control one or more LED drivers;

a LED driver unit comprising a driver for each color of LED able to control the intensity of light where one driver for each LED is used; and
an electrical connection to said LED modules; and
an arrangement of one or more LED modules.

The same arguments apply for claim 30 as outlined above for Claim 1. Dowling et al. disclose an **external** memory while the claimed invention discloses an integrated circuit comprising also a memory among all the other components.

Claims 31-32, 37, 40-45, 48-51, 53-54, and 57-60 are dependent claims upon base claim 30 which is believed to be patentable according to the arguments outlined above.

Claim 52 has been canceled. The limitation of claim 52, "said circuit is realized in an IC", has been written in amended base claim 30 now.

Claim 54 has been amended for clarification. The term "LEDs" has been replaced by "LED modules".

Claim 61 has been likewise amended as base claims 1 and 30:

- 61.** A phone system highlighting information/events, wherein LED modules are displaying related signals representing said different information/events, is comprising:
an integrated circuit comprising:
an interface to input of information;

- a memory to store the information about the properties of said signals to be displayed;
- a sequencer to control one or more LED drivers;
- a LED driver unit comprising a driver for each color of LED able to control the intensity of light where one driver for each LED is used; and
- an electrical connection to said LED modules; and

an arrangement of one or more LED modules.

The same arguments apply for claim 61 as outlined above for Claim 1 and Claim 30. Dowling et al. disclose an **external** memory while the claimed invention discloses an integrated circuit comprising also a memory among all the other components.

Claims 65, 67-70, 75, 78-84, 86-89, 91-92, and 95-98 are dependent claims upon base claim 61 which is believed to be patentable according to the arguments outlined above.

Claim 90 has been canceled. The limitation of claim 90, "said circuit is realized in an IC", has been written in amended base claim 61 now.

Claim 92 has been amended for clarification. The term "LEDs" has been replaced by "LED modules".

Reconsideration of the rejection of claims 4-7, 33-36, 71-74, 99-100, and 102-106 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Mueller et al. (US 6,016,038) is requested, based on amended claims and on the following remarks:

Mueller et al. disclose (col. 2, lines 21-37) :

“In brief, the invention herein comprises a pulse width modulated current control for an LED lighting assembly, where each current-controlled unit is uniquely addressable and capable of receiving illumination color information on a computer lighting network. In a further embodiment, the invention includes a binary tree network configuration of lighting units (nodes). In another embodiment, the present invention comprises a heat dissipating housing, made out of a heat-conductive material, for housing the lighting assembly. The heat dissipating housing contains two stacked circuit boards holding respectively the power module and the light module. The light module is adapted to be conveniently interchanged with other light modules having programmable current, and hence maximum light intensity, ratings. Other embodiments of the present invention involve novel applications for the general principles described herein.

Furthermore Mueller et al. discloses using multiple integrated circuits while in the claimed invention all components are integrated in one integrated circuit as disclosed in base claims 1, 30, and 61.

Mueller et al disclose (col. 4, lines 17-19):

“Also connected to pin connector 210 are three current programming integrated circuits, ICR 220, ICB 240 and ICG 260.”

Furthermore Mueller et al. disclose(col. 4, 48-54)

“The red, blue and green LED currents enter another integrated circuit, IC1 380, at respective nodes 324, 344 and 364. IC1 380 is preferably a high current/voltage Darlington driver, part no. DS2003 available from the National Semiconductor Corporation, Santa Clara, Calif. IC1 380 is used as a current sink, and functions to switch current between respective LED sets and ground 390.”

Moreover Mueller et al disclose (col.5, lines 12-14):

“The structure and operation of microcontroller IC2 400 will now be described. Microcontroller IC2 400 is preferably a MICROCHIP brand PIC16C63,”

The claimed invention discloses in its base claims”

“an integrated circuit comprising:

- an interface to input information;
- a memory to store the information about the properties of said beams to be displayed;
- a sequencer to control one or more LED drivers;
- a LED driver unit comprising a driver for each color of said LED modules able to control the intensity of light where one driver for each LED is used; and
- an electrical connection to said LED modules;”

None of the applied references address the systems of the claimed invention having integrated on **ONE** integrated circuit all components required to control said LED modules as described in amended base claims **1, 30 and 61** of the claimed invention outlined above.

Base claims **1, 30 and 61** are believed to be patentable over Dowling et al. (US 2002/0070688) in view of Mueller et al. Heyl (US 6,016,038) as it is respectfully suggested that the combination of these two references cannot be made without reference to Applicant’s own invention. The circuits of base claims 1, 30 and 61 are all believed to be novel and patentable over these references because a combination of the claimed elements would not address the circuits of the claimed invention, having all components integrated in one integrated circuit. and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claims 4-7 are dependent claims upon base claim 1, claims 33-36 are dependent claims upon base claim 30, and claims 71-74 are dependent claims upon base claim 61, all these three base claims 1, 30 and 61 are believed to be patentable according the arguments outlined above.

The amended claim 99 of the claimed invention discloses:

99. A method to establish visual, electronic communication, highlighting information/events, wherein LED modules are displaying related light signals having defined properties representing said different information/events comprising:
 providing an integrated circuit comprising an interface, a memory, a sequencer, a LED driver unit connected to LEDs, and one or more LED modules, comprising more than one LED each;
 determine the information to be visually highlighted;
 define the kind of highlighting of the information selected above;
 compose the sequencer steps according to the definitions of the two steps above;
 if said composing software is built into a phone, store the sequences in said memory;
 otherwise download sequences and store them in said memory;; and
ready for operation.

As discussed above neither Dowling et al. nor Mueller et al. disclose providing “an integrated circuit comprising an interface, a memory, a sequencer, a LED driver unit connected to LEDs, and one or more LED modules, comprising more than one LED each” as disclosed in claim 99 of the claimed invention. The method of base claim 99 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the method of the claimed invention, providing all components integrated in one integrated circuit. and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning

to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claims 100 and 102-106 are dependent claims upon base claim 99 which is believed to be patentable according to the arguments outlined above.

Reconsideration of the rejection of claims 9-10, 38-39, and 76-77 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Tokimoto et al. (US 6,690,341) is requested, based on amended claims and on the following remarks:

Tokimoto discloses (col. 1, lines 12-17):

“The present invention relates to a method of using a large screen low-density dot-matrix display device to display high-density bit-mapped dot-matrix image data. Specifically, the present invention relates to a method of obtaining as fine an image as possible through the aforesaid large screen dot-matrix display. “

Furthermore Tokimoto discloses (col.6, lines 19-46):

“Display Control System

The 128.times.256 dot-matrix pattern of the display panel is driven by bit-mapped image data for a 640.times.1,280 dot-matrix pattern. As was discussed previously, the density of the bit-mapped image data is five times greater than the resolution capability of the display panel.

When this type of image data is used to drive the entire surface of the display panel, there are twenty five (25) dots (5.times.5) of display data available for one dot on the display panel. As one embodiment of the present

invention shows in FIG. 6, nine (9) dots (3.times.3) can be designated as effective dots within the aforesaid 25-dots of available data, and thus can be driven as multiple dots within a one dot display. Data for the sixteen (16) dots (25-9) surrounding the aforesaid nine (9) effective dots is not utilized. In other words, data for the aforesaid 9-dot group is allocated to each dot on the display, thereby making possible a system which allows all of the image data specified to be used to drive the display.

The bit-mapped image data for a 640.times.1,280 dot-matrix pattern display is stored in a video RAM device and read accessed at high speed by a display control processor. The display control processor extracts data for one dot of the display from the 9-dot group data by means of an alternating selection operation repeated at high speed according to a specific selection sequence standard, and applies that data as a means of driving one dot on the display. This process is synchronized in order to drive all of the display dots on the 128.times.256-dot panel at a high speed."

Neither Dowling et al. nor Tokimoto et al. disclose using "an integrated circuit comprising an interface to input information, a memory to store the information about the properties of said beams to be displayed, a sequencer to control one or more LED drivers, an LED driver unit comprising a driver for each color of said LED modules able to control the intensity of light where one driver for each LED is used, and output pins for an electrical connection to said LED modules wherein said output pins are controlled and arranged by multiplexing means, and an arrangement of one or more LED modules," as Claim 1 of the claimed invention does. The system of base claim 1 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the system of the claimed invention, having all components integrated in one integrated circuit. and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claims 9-10 are dependent claims upon base claim 1, claims 38-39 are dependent claims upon base claim 30, and claims 76-77 are dependent claims upon base claim 61, all these three base claims 1, 30 and 61 are believed to be patentable according the arguments outlined above.

Reconsideration of the rejection of claims 16, 47 and 85 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Nishimura et al. (US 2003/0013484) is requested, based on amended claims and on the following remarks:

Nishimura discloses (paragraph 3):

"[0003] The present invention relates to a mobile communication terminal such as a mobile telephone or PDA (Personal Digital Assistants). More particularly, the **invention relates to the mobile communication terminal having a camera.**"

Furthermore Nishimura discloses (paras 7-8)):

"[0007] In view of the foregoing, the object of the invention is to provide a mobile communication terminal that can **provide high quality pictures** even if it is used at night or in dark rooms.

[0008] To attain the object, a mobile communication terminal according to an aspect of this invention comprises an electronic flash unit having a light emitting section. In the mobile communication terminal, a request for the control involving radio communication is monitored, and a request for the applying of a charging voltage or a light-emission drive current to the electronic flash unit is monitored. On the basis of the monitored results, the radio communication or the application of the voltage or current, or both are controlled, preventing the radio

communication and the application of the voltage or current from overlapping in time”.

Applicant believes that the invention of Nishimura is a non-analogous art because its field of invention relates to a camera in a mobile communication system and the claimed invention relates “generally to a visual communication system, and more particularly to a system wherein either information can be displayed by lights which represent different information/events by having different colors, brightness, ON/OFF intervals, etc.”

Furthermore neither Dowling et al. nor Nishimura et al. disclose using “an integrated circuit comprising an interface to input information, a memory to store the information about the properties of said beams to be displayed, a sequencer to control one or more LED drivers, an LED driver unit comprising a driver for each color of said LED modules able to control the intensity of light where one driver for each LED is used, and output pins for an electrical connection to said LED modules wherein said output pins are controlled and arranged by multiplexing means, and an arrangement of one or more LED modules,” as Claim 1 of the claimed invention does. The system of base claim 1 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the system of the claimed invention, having all components integrated in one integrated circuit. and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claim 16 is a dependent claim upon base claim 1, claim 47 is a dependent claim upon base claim 30, and claim 85 is a dependent claim upon base claim 61, all these three base claims 1, 30 and 61 are believed to be patentable according the arguments outlined above.

Reconsideration of the rejection of claims 24-25, 55-56 and 93-94 and 85 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Sasaki et al. (US 6,404,139) is requested, based on amended claims and on the following remarks:

Sasaki et al. disclose (paragraph 3):

“1. Field of the Invention

“The present invention relates in general to a circuit for driving a display device in which at least associated ones of display elements emit light by causing a D.C. current to flow through the at least associated ones of display elements, and more particularly to a circuit for measuring the voltage to current characteristics of the at least associated ones of display elements emitting the light to correct the driving state thereof in order to stabilize the luminance of the at least associated ones of the display elements emitting the light.”

Neither Dowling et al. nor Sasaki et al. disclose using “an integrated circuit comprising an interface to input information, a memory to store the information about the properties of said beams to be displayed, a sequencer to control one or more LED drivers, an LED driver unit comprising a driver for each color of said LED modules able

to control the intensity of light where one driver for each LED is used, and output pins for an electrical connection to said LED modules wherein said output pins are controlled and arranged by multiplexing means, and an arrangement of one or more LED modules,” as Claim 1 of the claimed invention does. The system of base claim 1 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the system of the claimed invention, having all components integrated in one integrated circuit. and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claims 24-25 are dependent claims upon base claim 1, claims 55-56 are dependent claims upon base claim 30, and claims 93-94 are dependent claims upon base claim 61, all these three base claims 1, 30 and 61 are believed to be patentable according the arguments outlined above.

Reconsideration of the rejection of claims 62-63 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Lys et al. (US 6,528,954) is requested, based on amended claims and on the following remarks:

Lys et al. discloses in the abstract :

“A smart light bulb is provided which may include a housing, an illumination source, disposed in the housing, and a processor, disposed in the housing,

for controlling the illumination source. The housing may be configured to fit a conventional light fixture. The illumination source may be an LED system or other illumination source. The processor may control the intensity or the color of the illumination source. The housing may also house a transmitter and/or receiver. The smart light bulb may respond to a signal from another device or send a signal to another device. The other device may be another smart light bulb or another device. The smart light bulb may be associated with a wide variety of illumination applications and environments.”

Neither Dowling et al. nor Lys et al. disclose using “an integrated circuit comprising an interface to input information, a memory to store the information about the properties of said beams to be displayed, a sequencer to control one or more LED drivers, an LED driver unit comprising a driver for each color of said LED modules able to control the intensity of light where one driver for each LED is used, and output pins for an electrical connection to said LED modules wherein said output pins are controlled and arranged by multiplexing means, and an arrangement of one or more LED modules,” as Claim 1 of the claimed invention does. The system of base claim 1 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the system of the claimed invention, having all components integrated in one integrated circuit. and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claims 62-63 are dependent claims upon base claim 61, which is believed to be patentable according the arguments an integrated circuit comprising all components required to control the display light signals above.

Reconsideration of the rejection of claim 64 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Kitano et al.. (US 2003/0216151) is requested, based on amended claims and on the following remarks:

Kitano et al disclose in their abstract:

"A mobile telephone equipped with camera(s) may employ, as camera flash(es), RGB tri-color LED(s) arranged on face(s) of the mobile telephone on side(s) thereof which is or are in direction(s) in which photograph(s) may be taken by camera(s). Where this is the case, the structure employed may be such that viewing angle(s) of RGB tri-color LED(s) is or are greater than field angle(s) of camera(s), and lens(es) may be arranged to the front of light emitting portion(s) of RGB tri-color LED(s) so as to cause illuminance of RGB tri-color LED(s) to be uniform within field angle(s) of camera(s). RGB tri-color LED(s) may also serve as incoming call indicator lamp(s)."

Neither Dowling et al. nor Kitano et al. disclose an integrated circuit comprising all components required to control the display light signals as claim 61 of the claimed invention:

- 61.** A phone system highlighting information/events, wherein LED modules are displaying related signals representing said different information/events, is comprising:
- an integrated circuit comprising:
 - an interface to input of information;
 - a memory to store the information about the properties of said signals to be displayed;
 - a sequencer to control one or more LED drivers;
 - a LED driver unit comprising a driver for each color of LED able to control the intensity of light where one driver for each LED is used; and
 - an electrical connection to said LED modules; and
 - an arrangement of one or more LED modules.

The system of base claim 61 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the system of the claimed invention, having all components integrated in one integrated circuit, and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claim 64 is a dependent claim upon base claim 61, which is believed to be patentable according the arguments outlined above.

Reconsideration of the rejection of claim 66 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Kota et al.. (US 7,003,318) is requested, based on amended claims and on the following remarks:

Kota et al disclose in their abstract:

"A mobile telephone with a camera function has an optimum shooting posture and optimum storage ability. The mobile telephone has a first housing and a second housing which are so connected by a hinge to enable longitudinal folding. A main display section has an operation section containing a set of a ten-key pad and functional keys, which are respectively provided on the inner surfaces of the first and second housings and are invisible when the housings are folded. A subsidiary display section and a camera section are respectively provided on the outer surfaces opposite to the inner surfaces and a shutter switch and a phone to camera changeover switch are provided on the outer surface of the housings."

Neither Dowling et al. nor Kota et al. disclose an integrated circuit comprising all components required to control the display light signals as claim 61 of the claimed invention:

- 61.** A phone system highlighting information/events, wherein LED modules are displaying related signals representing said different information/events, is comprising:
- an integrated circuit comprising:
 - an interface to input of information;
 - a memory to store the information about the properties of said signals to be displayed;
 - a sequencer to control one or more LED drivers;
 - a LED driver unit comprising a driver for each color of LED able to control the intensity of light where one driver for each LED is used; and
 - an electrical connection to said LED modules; and
 - an arrangement of one or more LED modules.

The system of base claim 61 is believed to be novel and patentable over these references because a combination of the claimed elements would not address the system of the claimed invention, having all components integrated in one integrated circuit, and would not be obvious to one skilled in art. That is to say there must be something in the prior art or line of reasoning to suggest that the combination of these two references is desirable. We believe that there is no such basis for the combination.

Claim 66 is a dependent claim upon base claim 61, which is believed to be patentable according the arguments outlined above.

Reconsideration of the rejection of claim 101 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Mueller et al.. (US

6,016,038) and further in view of Tokimoto et al. (US 6,690,341) is requested, based on amended claims and on the following remarks:

Claim 101 is a dependent claim upon base claim 99, which is believed to be patentable according the arguments outlined above.

Reconsideration of the rejection of claim 107 under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Mueller et al., (US 6,016,038) and further in view of Nishimura et al. (US 2003/013484) is requested, based on amended claims and on the following remarks:

Claim 107 is a dependent claim upon base claim 99, which is believed to be patentable according the arguments outlined above.

Allowance of all Claims is requested.

It is requested that should the Examiner not find that the Claims are now Allowable that the Examiner call the undersigned at 845-452-5863 to overcome any problems preventing allowance.

Respectfully submitted,



Stephen B. Ackerman, Reg. No. 37,761